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ABSTRACT

There has been a decrease in research and development activities focused on agricultural education probably due to expanded research in other areas. The document consists of 20 abstracts of completed studies and a list of 27 studies that were in progress during the preparation of this report. The research abstracts, arranged alphabetically by author, include title, purpose, method, and findings. The studies in progress are listed alphabetically by author. (JB)

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SUMMARY OF RESEARCH

AND

DEVELOPMENTAL ACTIVITIES

IN

AGRICULTURAL EDUCATION

NORTH ATLANTIC REGION

1972 - 73

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Summary of Research and Developmental Activities

North Atlantic Region

1972-73

Compiled and Edited by

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INTRODUCTION

Research and developmental activity that focused specifically on Agricultural Education decreased for the second consecutive year in the North Atlantic Region during 1972-73. This collection includes 20 abstracts of completed studies and a list of 27 studies that are in progress at the present time. The 20 studies completed compares with 24 studies in 1971-72, 45 studies in 1970-71, and 43 studies in 1969-70. An increased emphasis on research that involves problems common to more than one subject matter area of vocational-technical education appears to be one of the major reasons for the decrease in research specifically focusing on agricultural education.

The abstracts of research completed in 1972-73 were reported by teacher education institutions and state departments of education in the region. They are arranged alphabetically by author. All studies reported are available for loan from university libraries, teacher education departments, and state departments of vocational and technical education.

This compilation of research activity in agricultural education is an activity of the Research Committee of the Agricultural Education Division of the American Vocational Association.

Philip L. Edgecomb
Regional Representative
North Atlantic Region
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American Vocational Association

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RESEARCH ABSTRACTS

1972-73

ANTHONY FRANK. Development of a Semantic Differential Attitude Inventory for Firearm and Hunting Safety Education. Staff Study, 1972. Teacher Education Research Series. Vol. 13, No. 2. 31 p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose--(1) To develop a semantic differential attitude inventory, and (2) to determine whether concepts with pictures would produce more favorable attitude scores than verbal concepts alone. Other variables studied included the influence of sex, I.Q., age, place of residence, and years of hunting experience.

Method--Fifteen concepts which represent the "Ten Commandments of Hunting Safety" were rated on ten evaluative bipolar adjective scales. The concepts were presented in two booklets, concepts with pictures and concepts alone. The concepts were (1) Loaded Gun in the Home, (2) Keep Safety On, (3) Clear Target, (4) Passing Unloaded Gun Over Fence, (5) Bright-Colored Clothing, (6) Hunter-Safety Training, (7) Loaded Gun in Vehicle, (8) Clear Barrel, (9) Gun Play, (10) Stone Target, (11) Safety Zone, (12) State Game Lands, (13) Game Protector, (14) Firearm Registration, and (15) Alcohol and Guns.

The inventory was administered to 1,166 high school students; one-half of the students completed the picture inventory and the other one-half the inventory without pictures. The study was conducted in ten high schools having departments of agriculture and with adults enrolled at the Ross Leffler School of Conservation. This research was funded in part by the Pennsylvania Game Commission.

Findings--Students had significantly more favorable attitude scores on the following concepts when presented with a picture: (2) Keep Safety On, (4) Passing Unloaded Gun Over Fence, (8) Clear Barrel, and (11) Safety Zone. The picture booklet produced lower student scores on concept (15) Alcohol and Guns. There were no significant differences for the remaining concepts.

Students with I.Q.'s of 110 or higher had significantly more favorable scores on each concept than those in the I.Q. range of 90 to 109. The students in the middle range had significantly more favorable scores than those whose I.Q. was 89 or below. One exception was that the concept of Game Protector showed no significant difference. Another exception was in the case of concept (2) Keep Safety On where the middle group had lower scores.

The boys scored significantly more favorably than the girls only on concept (12) State Game Lands. Girls showed a significantly more favorable score for concepts (1) Loaded Gun in the Home, (4) Passing Unloaded Gun Over Fence, (11) Safety Zone, (13) Game Protector, and (14) Alcohol and Guns.

Students from urban and rural homes responded more favorably to concepts (5) Bright-Colored Clothing and (12) State Game Lands than did the suburbanites. For concept (13) Game Protector, urban and suburban students displayed a more favorable attitude than did the rural students.

All youth groups, scoring 60 to 62, agreed with the concept Firearm Registration, while the adult group, scoring 16.5, was opposed. It was only on this concept that a difference between youth and adult attitudes was found.

BARTON, GERALD L. Economic Aspects of Establishment in Dairy Farming in Cattaraugus County, New York. An Essay, M.Ed., 1973, Cornell University. 79 p. Library, Cornell University, Ithaca, New York.

Purpose--The primary purpose was to provide information concerning the economic aspects of becoming established in dairy farming.

Method--Thirty-four dairy farmers, age 40 or less, located on farms in Cattaraugus County, selling 400,000 pounds of milk or more per year, were personally interviewed to determine how they became established.

Findings--Farmers starting to farm in recent times started on larger than average farms and took longer to become established. When first selling fluid milk, the average participant had an equity of 14.3 percent of the farm business, and 17.7 percent of the farmers had no net worth; it was concluded that the equity a farmer has in the farm business, when he first sells fluid milk, is not a good indicator of success. Equity in dairy farming builds up so rapidly after a farmer begins selling milk, that the equity one has prior to selling milk is important only because it allows the farmer to sell milk.

It was concluded that one doesn't need to be raised on a farm to become a farmer, since 14.6 percent of the participants were not raised on farms.

Farmers use several rungs on the agriculture establishment ladder, spending a short time (usually less than 5 years) at each rung until they become an owner or full-share partner with some debts.

The participants had completed an average of 12.5 years of formal education and 75 percent had studied vocational agriculture. Only 20.6 percent said that agriculture experience programs helped them acquire net worth. It was concluded that agriculture experience programs are not being used effectively to help prospective dairy farmers build up net worth.

According to farmer opinion, the two best methods of becoming established in dairy farming are: to gain experience and equity by working into an established farm business with a written agreement; and to rent a farm and build up equity in cattle and equipment, so that they can purchase real estate.

BERKEY, ARTHUR. Validation of an Instrument to Measure Occupational Image in Agricultural Business and Industry. Staff study, 1973, College of Agriculture and Life Sciences at Cornell University. 158 p. Agricultural and Occupational Education, Stone Hall, Cornell University, Ithaca, New York.

Purpose--To develop and validate an instrument to measure occupational image in agricultural business and industry as held by workers and students enrolled in secondary school agriculture classes. No such instrument presently is available.

Method--The nature and components of occupational image was investigated through a manual and computerized search of the literature. Twelve occupational aspect areas were synthesized and forty-three image questionnaire items were developed to measure image in the occupational aspect areas. Two types of self-administered questionnaires were used: Type I had a mixture of positive and negative statements to which the respondent indicated agreement or disagreement; Type II used neutral statements for which respondents checked a varied response scale.

Questionnaires were distributed to workers at the unskilled, skilled and professional levels in agricultural production, agricultural supplying, and agricultural processing and distribution. Students responding to the questionnaire were enrolled in secondary classes in production agriculture, agricultural mechanization, conservation, and ornamental horticulture. Questionnaires were either sent by mail or distributed by employers. Return of questionnaires was by mail. Respondents in the study totaled 1185 persons.

Validation of instruments was by initial item selection through correlation analysis. Final selection of items for the validated instruments was through principal component factor analysis.

Findings--Instruments to measure occupational image were validated for the following major groups and subgroups:

Production agriculture
- . Total group
- . Dairy Farmers
- . Non-dairy production

Agriculture supplying
- . Total group
- . Professional employment level
- . Skilled employment level
- . Unskilled employment level

Processing/Distribution
- . Total group
- . Professional level
- . Skilled employment level
- . Unskilled employment level

Students enrolled in secondary agriculture classes
- . Production agriculture
- . Conservation
- . Agricultural mechanization
- . Ornamental horticulture

BUZZELL, ROBERT E. "An Analysis of Preparation of Graduates of Morrisville Agricultural and Technical College Who Transferred to Cornell University During the Years 1964-1968." An Essay, Thesis, M.Ed., 1972, Agricultural Education, Cornell University, Ithaca, New York.

Purpose--The main purpose of the study concerning Morrisville Agricultural and Technical College (MATC) graduates who transferred to Cornell for a baccalaureate program was to determine the following information: (1) the adequacy of the MATC two-year program in preparing students who transfer to the Cornell program; (2) the level of success attained by MATC graduates in their baccalaureate pursuits at Cornell; (3) in what academic subjects MATC graduates were underprepared at the time of their entry into the Cornell program; (4) the factors most influential to the decisions of MATC graduates to transfer to a baccalaureate program.

Method--All of the fifty MATC graduates who transferred to Cornell during the years 1964-1968 were included in the study. The transfers enrolled in three divisions of the New York State School of Agriculture: Food Processing, Agriculture, and Mechanical Technology.

A questionnaire was developed modeled after studies like Cooper, Jahns, and Cadozier's; Smith's; and Sears Roebuck Foundation's. After the questionnaire was reviewed by fellow graduate students, it was revised. In its final form, four of the eight items concerned the field of guidance and four investigated various aspects of the MATC curriculum. The questionnaire was mailed with a cover letter to the fifty transfers who graduated from Cornell during 1964-1968 asking for their cooperation.

Data for the remaining sections of the study was obtained from the participants' transcripts on file at both MATC and Cornell. Items were tabulated and charts prepared in accordance with the type of material to be presented in the study.

Findings--The author of the study found that 74% of the MATC graduates who transferred to Cornell earned the baccalaureate degree compiling between 120 and 123 credit hours on the average. The MATC graduates carried a 2.45 grade point average while at Cornell in comparison with 2.87 for the college as a whole.

The results of the questionnaires indicated that the graduate transfers did not originally have plans to transfer to a baccalaureate program when they first enrolled at MATC and they decided to do so primarily because of their top performance at MATC. It was found that the MATC faculty advisors were the most influential to transfer decisions and 87% would begin college again at the two-year college level. Eighty-five percent felt that they were adequately prepared through the MATC program to successfully function in the Cornell program although the greatest advantage of the MATC program was that it allowed for adjustment to college life. The greatest disadvantage seen in the transfer was in the loss of credit hours. Sixty percent of the MATC graduate transfers indicated that they would have benefitted from additional electives or new courses at MATC. They also indicated how they would schedule their programs differently if given a second chance at MATC.

CAREY, JOSEPH L. Development of a Trail System for the Williamsport Area Community College Outdoor Environmental Education Center. Paper, M.Ed., 1973, The Pennsylvania State University. 20p. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose--To design an interpretive trail system for the Outdoor Environmental Education Center on the large tract of land at the site of the Earth Science Facility of the Williamsport (PA) Area Community College. The report deals with planning, construction, and utilization.

Method--The planning phase of the study began with a detailed appraisal of a previously prepared set of goals for a comprehensive training facility including seventeen items classified under the following functions: educational, recreational, scientific, and cultural. From aerial maps the Soil Conservation Service prepared a land use capability inventory and program for long-range development.

An advisory committee meeting of teachers of agriculture with experience in the establishment of outdoor conservation education laboratories was held. The group listened to an explanation of the plans for the trail system, toured the area, and offered helpful suggestions. Methods for community citizen consultation and involvement were outlined. Sources of funds for construction were discussed and preferred materials were specified.

Findings--Exclusive of the interpretive trails system, nine phases in the development of the center include: grading, topsoil application, seeding, and planting of the school building area; construction of a heavy machinery and equipment park for student practice; installation of diversions (terraces) for erosion and water control; planting of an arboretum; establishment of agricultural cropping, forest management, and game food planting areas; starting of a landscape materials nursery; stream development and pond construction; erection of a building to serve as a wildlife observatory and facilities for a picnic area; and installation of a sawmill operation for instruction. Several of these laboratory areas will primarily serve the community college students in heavy equipment (earth moving) operation and service, forestry, natural resources and recreation services, and ornamental horticulture. Some have teaching values for post-secondary, vocational, and handicapped student programs. Elementary and secondary teachers in Lycoming County will be encouraged to make class field trips to the center. High school vocational agriculture students will be trained to serve as guides. Adjunct instructors, such as senior citizens with special knowledge, may be hired. Summer institutes for groups from other colleges, schools and government agencies, and inservice days for teachers can be scheduled. In summary, the total plan is to be flexible to meet an ever-growing scope of human and environmental purposes.

CHIT-ANAN, BOONTHAM. The Professional Tasks of the Agriculture Teacher in Thailand. Thesis, Ph.D., 1973, Cornell University. Library, Cornell University, Ithaca.

Purpose--The purpose was to study the tasks of agricultural teachers in Thailand as a basis for determining professional curricular content for agriculture teacher training programs. The objectives were to: describe major characteristics of vocational agriculture programs; identify professional tasks which agriculture teachers performed, and believed should be performed; identify the professional tasks which the agriculture teacher was expected to perform as perceived by the principals and selected experts in agricultural education; and determine the relationships between ratings on professional tasks by agriculture teachers, principals, and the jury of experts.

Method--From a review of related literature and the use of the jury technique, the data collection instruments were constructed and field-tested. For performance and expectation task ratings, a three-point rating scale was used for 89 tasks under 11 task areas.

The sample included all agricultural school principals (27), all comprehensive secondary school principals (70), all 456 agriculture teachers (342 in agricultural schools and 114 in comprehensive schools) in Thailand, and a jury of experts (33).

The data collection employed interviews, group-administered questionnaires, and mail questionnaires. The field study was conducted in Thailand with approximately 90% instrument return. In analyzing relationships between task ratings the t test and the one-way analysis of variance were used.

Findings--Twenty-seven agricultural schools and seventy comprehensive secondary schools in Thailand offered vocational agriculture programs.

High frequency of task performance by all agriculture teachers was found in in-school programs. The teachers, principals, and the jury members rated almost all of the 89 professional tasks "important", and rated one-fourth of tasks "very important". No significant differences were found between the task performance mean ratings given by both groups of teachers, and among the task expectation mean ratings given by all three respondent groups on in-school tasks. However, there were significant differences between the task performance and task expectation mean ratings given by all teachers on almost all tasks, and jury members had higher expectation on out-of-school tasks.

Conclusions--All students who need and desire education in vocational agriculture are not being served; the programs in the comprehensive schools have been conducted with limited teaching aids; the teachers spent most of their time performing in-school program tasks; assignments other than teaching agriculture limit the teachers' time in developing agricultural programs; teachers' in-service training needs, pre-service training programs, and coordination should be provided; one training program can be developed to train teachers for both types of schools; and the major factors that might cause the low frequency of task performance were--school policies, lack of teaching aids, financial support, nature of the task and teaching load.

CURTIS, JAMES R. Evaluating Behavioral Objectives, Task Analysis, and Visual Aids for Teaching Quality Milk Production to Three Academic Achievement Levels of High School Students. Thesis, M.S., 1973, The Pennsylvania State University. 77 p. Library, The Pennsylvania State University, University Park.

Purpose--The objectives were: (1) to prepare instructional materials including visual aids and behavioral objectives to facilitate an improved instructional program for teaching quality milk production to educationally disadvantaged students, (2) to evaluate experimental instructional materials using three academic achievement levels of high school students, and (3) to revise the instructional materials.

Method--Available instructional materials on quality milk production were rewritten and behavioral objectives prepared for teaching educationally disadvantaged high school agriculture students. The instructional materials incorporated visual aids with technical material presented at a sixth grade reading comprehension level. Task analysis was used whenever feasible to develop the six problem areas: (1) milk secretion, (2) quality tests, (3) sanitation, (4) managed milking, (5) herd health, and (6) farm and milkhouse management.

One hundred forty vocational agriculture students in 11 Pennsylvania schools completed the study. Seven schools participating in a Department of Agricultural Education Project, Education in Agriculture for the Educationally Disadvantaged, were assigned to instructional materials type 1 (experimental instructional materials and behavioral objectives). The remaining four schools were randomly assigned to either instructional materials type 2, (behavioral objectives plus the original quality milk production manual) or to instructional materials type 3 (experimental instructional materials only). In each of the 11 schools the students were classified as: (1) disadvantaged, (2) average, or (3) above average.

Findings--The experimental instructional materials with behavioral objectives which incorporated the use of visual materials and task analysis proved to be an effective teaching system in this study. The educationally disadvantaged students who received the experimental (type 1) treatment scored significantly higher than the disadvantaged students using the same materials without the behavioral objectives (type 3).

The study showed that educationally disadvantaged students, given the right kinds of instructional materials, could achieve certain occupational tasks as well as other students. In general, the disadvantaged students did not perform as well as their classmates. They increased their scores over the pre-test by an average of ten points. Even though their performance was not equal to that of their average and above average classmates, they did learn from the prepared instructional materials and behavioral objectives.

CURTIS, SAMUEL M. Education in Agriculture for the Educationally Disadvantaged. Staff study, 1973. 11 p. Report to Pennsylvania Department of Education, RCU Project No. 19-2005. Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose--(1) To prepare and evaluate teaching units to facilitate instruction for educationally disadvantaged high school students in agriculture courses, and (2) to investigate techniques for improving teacher proficiency with classes that include disadvantaged youth.

Method--Teaching units on Nursery Production: A Task Analysis Instructional System and Quality Milk Production for High School Students were prepared as student manuals, color slide series, and film loops. Characteristics of educationally disadvantaged eighth grade students were surveyed and data analyzed for relationships with enrollment in high school classes in agriculture. Teacher attitudes toward teaching educationally disadvantaged students were measured twice, with ten months involvement in this study intervening.

Findings--The two units listed above were field tested by 25 teachers in 24 schools, revised to sixth grade reading level, and published. The available materials include the manuals, slide series and film loops. In addition, a guidance booklet for students titled Entry Level Jobs was written and distributed to the teachers and guidance counselors in the project.

The Biological and Agribusiness Interest Inventory was administered in 1971-72. Of the 2376 eighth graders tested in 18 schools, 221 enrolled in agriculture classes in ninth grade in 1972-73. Teachers listed their ninth grade enrollees and identified the educationally disadvantaged. The lists did not exactly correspond with the lists of eighth graders tested previously. One reason for the difference was that in several schools special education students had not been allowed to take the interest inventory; yet, a substantial number of these students showed up in the ninth grade agriculture classes.

Twelve hundred two eighth grade students responding "yes" to interest in enrolling in agriculture courses were stratified by father's occupation. All four part scores, interest in Animals, Plants, Mechanics and Business, as well as the total scores were significantly higher for the students whose fathers are farmers than for those whose fathers were in agriculture-non farm or in all other occupations. The results were different when only the students who actually enrolled in agriculture classes in the ninth grade were compared. In all three father's occupation groups, the student interest scores averaged in the high interest area on the norms.

Teacher attitude scores were more positive on each of 12 concepts at the time of the second test. These data indicate that participation in the project has improved teacher attitude toward working with educationally disadvantaged students.

DEL POZZO, STEPHEN M. Personal Learning Experience Acquired While Conducting a Study of Educational Skills Necessary for Greenhouse Operation and Management. Supervised Field Practicum, M.A., 1972, University of Rhode Island. 38 p. Department of Education, University of Rhode Island, Kingston.

Purpose--This supervised field practicum was undertaken to provide the author with an opportunity to further his understanding of group dynamics and increase his self-confidence and leadership abilities.

Method--The author worked with Dr. Donald McCreight and the staff at the College of Resource Development, Teacher Education, University of Rhode Island, on a study to determine the needs and requirements for trained personnel in the horticulture industry in Rhode Island. The following procedures were used: (1) Sixteen Rhode Island businesses in the horticulture industry were interviewed. (2) The author developed and refined his interview technique as he conducted the interviews. (3) The writer formed an advisory committee comprised of people from the horticultural businesses surveyed in the state. (4) Evaluation sheets were constructed and administered to the advisory committees.

Findings--The writer experienced personal growth during the practicum in the following areas: (1) Experience in conducting interviews and collecting data. (2) Increased self-confidence and group leadership skills through organizing, conducting, and evaluating the advisory committee meetings. (3) More confidence in my interactions with people in individual and group situations. (4) Increased understanding of other people while learning to further understand self. (5) A greater understanding of the needs of the horticulture industry in Rhode Island.

ELY, RONDA HARGUS. Performance Based Professional Education Inservice Needs of Secondary Level Occupational Teachers in New York State. Thesis, Ph.D., 1973, Cornell University. Library, Cornell University, Ithaca, New York.

Purpose--The major purpose of this study was the identification of the professional education inservice needs of secondary level occupational teachers in New York State. A secondary purpose was the differentiation of inservice needs common and/or unique to service area occupational teacher groups. The current dearth of inservice needs information for employed occupational teachers is compounded by occupational teachers entering the profession with increasingly varied educational and occupational backgrounds. A move toward expanded opportunities for certification in New York has also produced an increasing number of occupational teachers whose professional competencies are relatively unknown to the teacher educators, supervisors, and administrators who have responsibility for developing inservice programs.

Method--The 1972-73 Directory of New York State Vocational Education Personnel was used to identify the population which contained 1648 occupational teachers, 70 occupational supervisors, and 77 occupational schools. A sample of 677 occupational teachers was randomly selected and then segregated into the following service area occupational teacher groups: agriculture teacher, business teacher, distributive education teacher, health teacher, home economics teacher, and trade and industrial teacher. From a list of participating teachers in each occupational school, one teacher was randomly selected and assigned to his/her immediate supervisor for evaluation purposes.

A survey instrument consisting of 422 performance-based professional education behavior statements was developed and mailed to the sample of occupational teachers and supervisors for self-administration.

Findings--The major findings include the following: (1) There is substantial overlap in the importance attached to professional competencies by occupational teachers in the six service area teacher groups. (2) Occupational teachers in the six service area teacher groups perceive their performance at similar levels. (3) The level of occupational teacher-supervisor agreement fluctuates widely at the cluster level ranging from a correlation of +.77 to -.65; on some categories of behaviors there is significant positive agreement. (4) There is little difference in the perceived inservice needs of occupational teachers in New York State. (5) Occupational teachers perceive an urgent need for professional education inservice programs in specified areas (management, planning instruction, professional role and development) and little need for inservice programs in other areas (student occupational organizations).

FREDD, WILLIAM M. Evaluation of Simulation in Teaching Farm Management Decision Making to High School Students and Adults. Thesis, D.Ed., 1973, The Pennsylvania State University. 140 p. Library, The Pennsylvania State University, University Park.

Purpose--(1) To evaluate the effect of size of group on individual learning when simulation is used as a teaching method, (2) to determing learning differences between high school students and young adult farmers studying decision making by a simulated farm management exercise, and (3) to appraise effects of teaching adults on high school student learning of farm management by simulation.

Method--A simulated model was developed of an actual southeastern Pennsylvania young farmer's dairy farm. This model was named "A Southeastern Pennsylvania Farm Management Simulation". Agriculture teachers involved attended a day-and-a-half workshop at The Pennsylvania State University. Simulation was defined, procedures were given, and a trial exercise was conducted.

Teachers in twenty-two schools taught a total of 299 high school students and 138 young adult farmers. Participants were placed randomly in learning groups of two to five. Each group made three sets of decisions for "A Southeastern Pennsylvania Farm Management Simulation". Each set of decisions for the next year followed class study and critique of the results of the previous run in an effort to apply sound budgeting and farm management principles.

The criterion measures were (1) post test scores on a farm management test, (2) net worth, net farm income, and labor and management returns on a postgame small dairy farm simulation exercise, and (3) the same financial figures taken from the third year's results of computer simulation of the model farm. Variables used in covariance analysis were pretest scores on the farm management test, pregame scores on the small dairy farm simulation, place of residence, and high school student I.Q. score.

Findings--There were higher mean scores in the two-student and three-student size groups over the four-and five-student size groups. Significant additional learning was inferred from the financial data of the third year's simulated management of the southeastern Pennsylvania farm.

The young adult farmers made higher scores on the farm management test. The average gains from pretest to posttest were the same for high school students and young adult farmers but there were no significant differences in learning measured by adjusted net worth, net farm income, and labor and management returns.

Higher scores were achieved by high school students taught by instructors who also taught young adult farmers than by students taught by agriculture teachers of high school students only. High school students, young adult farmers, and teachers showed enthusiasm during their involvement in the study. The simulation booklet, with revision for clarity and price changes, is an addition to vocational education instruction methods.

FRY, MARK J. An Evaluation of Career Education in the Northeast Franklin Supervisory Union. Paper, M.Ed., 1973, The Pennsylvania State University. 69p. Library, The Pennsylvania State University, University Park.

Purpose--To determine to what extent the U.S. Office of Education exemplary career education funded project in a Vermont school district is actually increasing career awareness of students. Of fifteen formal objectives of the three-year contract, four were emphasized in this study. They are:

1. To broaden occupational orientation, occupational aspirations, and opportunities for all students at all grade levels (including the disadvantaged and handicapped.)

2. To provide practical work experience and develop employability and a sense of responsibility in students.

3. To develop the assumption of responsibility (by the school) for placement of students at whatever level they leave the school system.

4. To bring the school system and the business community closer together for the improvement of career education.

Method--Two evaluation forms were used in interviews with twenty-eight teachers and five principals in elementary, middle, and high schools of the Northeast Franklin Supervisory Union district in Vermont in the second year of the project. Perceptions, opinions, and attitudes were recorded on rating scales. Perceptions of career education, in the form of ratings of thirty items asking what the school is doing now and of what more the school should be doing, were averaged on a four-point scale. Evaluations of the degree to which each of the fifteen formal objectives of the project had been accomplished were made by the teachers and principals.

Findings--The following generalizations were made: (a) A majority of the teachers and principals stated that twelve of the objectives have been achieved. (b) The concept of Career Education has been most influential at the elementary level. However, impact can now be seen in the junior-senior high schools. (c) The placement and follow-up phase is in existence and operating. The impact of this cannot be measured until the end of this school year. (d) It is quite apparent that the availability of Career Education Specialists, both elementary and secondary, is quite essential to consistent quality activities. This is particularly true in the career counseling, exposure, and placement areas. (e) The importance of presentations to local organizations is obvious for the acceptance and future of Career Education. (f) The evaluation opinionnaire, responded to by teachers and principals, indicates satisfactory to good ratings for all phases of the project. (g) Communications and relations between the Superintendent's office and Project staff on one hand, and staff of the schools throughout the Union on the other hand, are generally excellent. (h) Progress is being made, but communications between education staff and the lay public is still not what it should be; it merits concentrated systematic attention.

HAYWARD, ISAAC J. Effects of Computer Simulation of Retail Flower Shop Management on High School Student Achievement. Paper, M.Ed., 1973, The Pennsylvania State University. 78 p. Library, The Pennsylvania State University, University Park.

Purpose--(1) To compare management principles learning achievement of males with that of females, (2) to compare dollars net revenue and net worth attained by students for quarter one with quarter two, (3) to measure effects of number of quarters managed (computer runs) on student achievement, (4) to measure effects of grade level on student achievement, (5) to measure effects of group size on student achievement, and (6) to determine student attitude scale responses to the teaching experiment.

Method--A simulated retail flower shop management game was used in the study. Student evaluation was based on three criterion measures: (1) management principles post-test score, (2) dollars net revenue, and (3) dollars net worth. The sample consisted of 83 tenth, eleventh, and twelfth grade students in six Area Vocational Technical Schools in Pennsylvania. Each student received instructional materials for the flower shop game and made management decisions on a quarterly basis. Students were divided into (1) group size of one, (2) group size of two. The six participating teachers used their own methods of instruction. After completing the game, students responded to an attitude measure consisting of ten items.

Findings--The results from this simulation teaching exercise conducted with students in ornamental horticulture in six schools were: (1) Males and females scored equally well on the management principles achievement test; (2) students made significantly higher dollars mean net revenue and mean net worth for the second quarter than they did for the first quarter; (3) scores on the posttest were significantly higher for the students who managed two quarters before taking the posttest than for the students who took the posttest after managing only one quarter; (4) high school grade level in this study had no significant effect on any of the three criterion measures; (5) students who worked alone during this exercise performed equally as well as the students who worked in teams of two; and (6) nearly all of the students had positive attitudes toward the simulated retail flower shop management game. Many participants felt it was better than ordinary classroom work, and most felt that it represented a real flower shop business situation.

MARCURE, ERNEST. A Learning Experience Gained While Serving as Assistant to the Chairman of the Coventry Recreation Committee. Supervised Field Practicum, M.A., 1972, University of Rhode Island. 50 p. Department of Education, University of Rhode Island, Kingston.

Purpose--The supervised field practicum was conducted to provide the author with an opportunity to become knowledgeable in: (1) applying for state and federal funds for community programs; (2) recognizing the needs of the town in terms of community programs; and (3) learning how to use the information gathered to devise community programs.

Method--The following procedures were used: (1) Interviews were conducted with Mr. Pimentel, the O.E.O. Coordinator, and with the center directors in Warwick and Cranston. Short interviews and discussions were held with the members of the Town Council. (2) A questionnaire was constructed and administered through the town's newspapers. Interviews were conducted with the townspeople including both adults and young people. (3) The data was then recorded, and using the information gathered, a program was devised.

Findings--From the procedures the following outcomes were obtained: (1) The author became familiar and knowledgeable to a level of functional capability in terms of applying for state and federal funds. (2) The questionnaire and interviews enabled the author to obtain first hand feedback which was essential for a program to be responsive. (3) A program was devised from the data gathered and was presented to the Coventry Town Council for their approval. The program was approved as presented.

MORTENSEN, JAMES H. Effects of Forestry Instructional Resource Units, Student Objectives, and Realia on Student Knowledge, Attitude, and Interest. Thesis, PhD., 1973, The Pennsylvania State University. 124 p. Library, The Pennsylvania State University, University Park.

Purpose--To evaluate the relative effectiveness of forestry instructional resource units, behavioral objectives, and realia in facilitating the vocational development of high school students as measured by an achievement test, attitude inventory, and occupational interest checklist.

Method--A multivariate experiment was designed to test differences in student learning among four instructional resource unit, two student objective, and two realia treatment levels. Twenty-nine schools, an experimental group of 24 and a control group of five, were randomly selected from a stratified population of all schools offering vocational agriculture in the Central Vocational Administrative Region of Pennsylvania that had, during the previous year, taught the unit "Management of Forest Resources for Multiple Use", and from all other schools that had not taught this unit. Students in all 24 experimental schools received the unit, "Products From Our Forests - Their Manufacture and Use," and constituted the forest product - forest management and the forest product treatment levels. Student objectives written in behavioral terms were provided to a random one-half of the schools in each of the instructional resource unit treatment levels. The other 12 schools received traditional objectives. A kit of forestry and forest product realia was randomly assigned to one-half of the schools in each of the student objective treatment levels. The remaining twelve schools received no realia. Students in two of the control schools had received instruction in forest management the previous year and constituted the forest management ex post facto treatment level. The other three schools constituted the no treatment level.

Findings--The forest product - forest management mean achievement test score (31.4) was significantly greater than the forest product mean achievement test score (24.7) by analysis of covariance. Mean scores of both these treatments were significantly greater than the mean score of the forest management (21.0) and the no treatment (20.3) levels. Student mean attitude inventory scores were significantly greater on 6 of 10 forestry concepts for the forest product-forest management and the forest product instructional resource unit treatment levels than for the forest management and no treatment levels.

Student mean achievement test scores and student attitude inventory test scores on 9 of 10 concepts showed no significant differences between student objective treatment levels. The adjusted student forestry occupational interest checklist mean score for students supplied traditional objectives (129.4) was significantly greater than for students supplied behavioral objectives (125.2).

Adjusted student mean achievement test scores, attitude inventory scores and forestry occupational interest checklist scores were not significantly different between the two realia treatment levels.

MORTENSEN, JAMES H. and RICHARD F. STINSON. Career Education in the Natural Resources. Staff study, 1973. Report to the Division of Vocational and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare on Grant No. OEG-0-71-4432(357). Department of Agricultural Education, The Pennsylvania State University, University Park.

Purpose--(1) to develop curriculum guides in the natural resources for grades K-14; (2) to acquaint educational leadership in all states with the curriculum products; and (3) to disseminate in the states copies of the curriculum materials produced.

Method--Four publications were prepared which suggest a sequentially-developed education program offering career awareness, career exploration, and job preparation in the natural resources. Regional Briefing Sessions were held at Philadelphia, Atlanta, Chicago, Dallas, Kansas City, Denver, San Francisco, and Seattle. More than 300 classroom teachers, guidance counselors, school administrators, teacher educators, and state education department personnel attended these meetings and examined preliminary drafts of the materials. Recommendations made to improve the four publications are reflected in the final documents.

Findings--Titles and brief descriptions of new curriculum materials are given below.

Natural Resources and Career Awareness - A Teacher's Guide for Grades K-6. Intended for interdisciplinary use, this guide offers activities which (1) aid the child in exploring his world and dividing this world into identifiable study groups; (2) deal with the needs of living things and relate them to the use of natural resources; and (3) help children become aware of specific information about and interrelationships that exist among natural resources.

Exploring Occupations in the Natural Resources - A Student Resource Guide for the Middle School. Written for students, this resource guide suggests hands on experiences, field observations, and classroom activities to help students develop knowledge of their personal strengths and weaknesses and to be able to understand the relationship of these characteristics to educational and vocational choices.

Occupational Preparation in the Natural Resources - A Suggested High School Curriculum Guide. Written for administrators, teachers, and guidance counselors, this curriculum guide suggests procedures for implementing a specialized program for occupational preparation in natural resources and provides outlines of 32 instructional units.

Natural Resources Technologies - A Suggested Post High School Program Development Guide. Intended for administrators of post high school institutions, this program development guide outlines technological programs in air pollution control, forestry, rangeland, mining, geology, outdoor recreation, soil, urban-regional planning, landscape architecture, water resources development, water supply and wastewater treatment, oceanography, wildlife, fish, and marine life.

NICHOL, JAMES W. A Natural Environment Course for Ninth Grade, Including an Outdoor Land Laboratory. Paper, M.Ed., 1973, The Pennsylvania State University. 100 p. Library, The Pennsylvania State University, University Park.

Purpose--To develop a course of study concerning man and his natural environment, and to propose a plan for the development and implementation of an outdoor study area on a school campus.

Method--Selection of topics to be developed into experience units of study was based on an extensive review of literature assembled for a U.S. Office of Education curriculum materials project on occupations in natural resources. Physical development of an outdoor land laboratory at Christiana (Del.) High School was designed to render use as flexible as feasible and to encourage large input from students, faculty and interested citizens in the community.

Findings--The proposed course of study titled Man and His Natural Environment is for a ninth and tenth grade class of fifteen to twenty students meeting one 45-minute period each school day for 36 weeks. Ten environmental topics allocated 2, 3, or 4 weeks are (1) introduction, (2) population effects, (3) soil, (4) water, (5) sanitation, (6) wildlife, (7) forests, (8) outdoor recreation, (9) atmosphere, and (10) related environmental issues, such as pesticides, limited fuel resources, and wetland and coastal zoning.

The two acres on Christiana High School's fifty-one acre campus that have been selected for development as an Outdoor Study Area offer eight different landforms including (1) open grass fields, (2) rough grassland and barren land, (3) woodland or forest, (4) campcraft skills teaching area, (5) bog-type study area, (6) drainage ditch, (7) wetlands with flowing water, and (8) wildlife study areas suited to a trail system. Detailed construction plans were prepared for the long-term physical development of each area.

QUESADA, R.M. and S.K. SEAVER. Education, Employment, and Income of High School Vocational Agriculture Graduates. Staff Study, 1972. 40 p. Department of Agricultural Economics, University of Connecticut, Storrs.

Purpose--To assess the practical implications of a high school vocational agriculture education and to seek out any potential need for the development or revision of instructional programs.

Method--Data on income, education, and employment were obtained from high school vocational agriculture graduating classes of 1961, 1964, 1967, and 1970. Mail questionnaires were developed with a random sample of twenty people receiving a personal interview in addition to the mail questionnaire.

Findings--The following variables were found to be significantly related to higher levels of income: (1) farm and non-farm employment, (2) years of further education in agriculture, and (3) years of further education in non-agriculture.

Approximately ten percent of the vo-ag graduates continue their education at a four-year college. Approximately 45 percent of vocational agriculture graduates continue their education for one or more years beyond high school.

A majority of the students were employed in agriculture. Eighty-five percent of those who were self-employed or working with their families were in agriculture.

RHODES, CHARLES I. An Evaluation of the Self Directed Search and The Effect of Group or Independent Use in Facilitating Career Development of Secondary School Students. Dissertation, Ed.D., 1973, West Virginia University, Morgantown.

Purpose--Primary purposes of this study were to investigate the construct validity of the Self Directed Search and the effects of group or independent use of the SDS in facilitating career development of secondary students.

Method--Construct validity was evaluated by investigating: (1) the intercorrelations among SDS scales; (2) congruence between current occupational choice and SDS Summary Code; (3) relation of the SDS to the Ohio Vocational Interest Survey; (4) relation of the Summary Code to interest in school subjects; and (5) relation of the Summary Code to measures of ability and achievement.

This study also investigates the effect on vocational maturity, interestingness of the SDS, satisfaction with the SDS, and errors committed when the SDS is utilized by students in a group setting or independently. Also, the effects of sex and grade level on these dependent variables were investigated. Effects due to I.Q., verbal and non-verbal abilities, and reading and mathematics achievement were controlled through analysis of covariance as was socioeconomics class as measured by educational level of father's occupation.

Students enrolled in the two high schools (grades nine through twelve) of Jackson County, West Virginia, were the population (N = 1739) from which this sample (N = 346) was drawn. One English section per grade level in each high school was randomly assigned to treatment one (use of the SDS in a group setting) and one section was assigned to treatment two (independent use of the SDS). Of the 346 students, 192 (99 females and 93 males) received treatment one and 154 (75 females and 79 males) were in the treatment two group.

Findings--Analysis of the data indicated:

(1) That the scales of the SDS discriminated well between the personality types with the exception of the two self-estimates scales which did not discriminate well between the Social and Enterprising personality types in high school students.

(2) A modification of Holland's hexagonal model offered a better fit of the intercorrelations between scales measuring the personality types than did the original model.

(3) Student's current occupational choice codes agreed with their Summary Codes to a greater extent than would be expected by chance.

(4) Aptitudes, achievement, interest in school subjects, and the Ohio Vocational Interest Survey scales were related to Summary Code scores in expected ways.

(5) Students who had utilized the SDS in a group session were more vocationally mature (measured by the Vocational Development Inventory) than those who made independent use of the SDS when intelligence was controlled. Also, girls were more vocationally mature than boys; eleventh and twelfth grade students were more vocationally mature than those in the ninth and tenth grades.

SAVILLE, JOHN K. Problems Encountered When Incorporating Vocational Agriculture into Area Vocational Schools. Thesis, M.S., 1973, West Virginia University. 104 p. Library, West Virginia University, Morgantown.

Purpose--The purpose of this study was to identify the problems encountered when incorporating vocational agriculture into the area vocational schools.

Method--Data for this study were collected by questionnaires mailed to one randomly selected teacher of vocational agriculture, state supervisor of vocational agriculture, and state director of vocational education in forty-nine states. The Likert scale method was used in the questionnaire to obtain ratings from the respondents as to what degree the various topics listed under nine major areas were or were not problems when incorporating vocational agriculture into the area vocational schools. The nine areas were: (1) planning, (2) curriculum, (3) scheduling, (4) transportation, (5) space and equipment, (6) counseling, (7) coordination between schools, (8) extra curricular activities, and (9) miscellaneous factors.

Findings--Data collected indicate that vo-ag teachers are not consulted to any great extent about the construction of vo-ag facilities in area vocational schools. Respondents indicated that classrooms, shops and laboratories are designed and assigned to specific vo-ag use during the preliminary planning stage of the area vocational school. Vo-ag teachers were involved to a great degree in curriculum planning. State supervisors were involved most at the next level, while local supervisors, advisory councils and teacher educators ranked next in order respectively. The most commonly offered program of instruction was in agricultural mechanics, while ornamental horticulture, production agriculture, and agricultural sales and services ranked second, third and fourth, respectively. Relocation of the vo-ag program to area schools had little effect on student interest in vo-ag and FFA. It did seem to have a favorable effect on increased enrollment and student-learning process. Transportation presented a problem when enrolling vo-ag students and it was difficult for the students to participate in vo-ag and FFA activities because of bus scheduling.

Most area vocational schools have guidance counselors. They generally support vo-ag but lack a full understanding of the program. Principals of the high schools that have vo-ag students enrolled in the area schools do support the program.

Respondents generally agreed that the production agriculture program should be taught in the regular high school. Information gained in this study indicated that students can complete vocational agriculture in the area vocational school and still meet college entrance requirements.

STUDIES IN PROGRESS

1973-1974

BAIL, JOE P. AND HAROLD R. CUSHMAN. Procedural Models for Organizing and Conducting Adult Education Courses. Staff Study, Agricultural Education Division, Cornell University, Ithaca.

BARRETT, LEVERNE A. Effectiveness of a Sixth Grade Resident Camping Experience in Developing Students' Attitudes Toward the Environment. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

BERKEY, ARTHUR. Pre-Coding Research Data Collection Instruments. Staff Study, Agricultural Education Division, Cornell University, Ithaca.

BERKEY, ARTHUR. The Relevance of Secondary Education in Agriculture to Occupational Status and Images. Staff Study, Agricultural Education Division, Cornell University, Ithaca.

BROWN, EDWARD J. The Historical Role of the Grange in Relation to Vocational Education. Thesis, D.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

BURTON, MICHAEL J. Relations of Adult Class Teaching and Individual Herd Data Analysis with Dairy Farmer Sire Selection Decision -Making Abilities and Change in Milk Production. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

CAPOGROSSI, DOUGLAS. A Portrait of the Tompkins County Adolescent, 1973: Selected Social, Sexual, Medical, Maturational, Educational, and Behavioral Characteristics. Thesis, M.S., Agricultural Education Division, Cornell University, Ithaca.

CAREY, RAYMOND E. Effectiveness of Independent Study Modules or Mini-courses in Agricultural Mechanics and Production for High School Students. Thesis, M.S., Department of Agricultural Education, The Pennsylvania State University, University Park.

CUSHMAN, HAROLD and FREDERICK K.T. TOM. A Diagnostic Observation and Reporting System for Student Description of College Teaching. Staff Study, Agricultural Education Division, Cornell University, Ithaca.

DRAKE, WILLIAM E. A Model for Determining Professional Education In-Service Needs of Secondary Level Occupational Teachers. Staff Study, Agricultural Education Division, Cornell University, Ithaca.

GRANT, LEE P. Effects of Varied Inservice Teacher Education in Agriculture and Concurrent Teacher Activities on Teacher Achievement and Attitudes Toward Agricultural Mechanics. Thesis, Ph.D., Department of Agricultural Education, The Pennsylvania State University, University Park.

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HAWKES, DENNIS A. Differential Stability of Interests and Occupational Education Plans of Frederick County High School Students Measured by the Ohio Vocational Interest Survey. Thesis, D.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

LINDLEY, WILLIAM I. An Analysis of the Vocational Youth Organizations in New York State's Occupational Centers and the Development of Recommendations for the Expansions of These Organizations. Thesis, Ph.D., Agricultural Education Division, Cornell University, Ithaca.

McCREIGHT, DONALD E. Developing, Implementing and Evaluating Career Exploration Materials. Staff Study, Teacher Education, College of Resource Development, University of Rhode Island, Kingston.

McMILLEN, RICHARD. Determining Manpower Needs of Calhoun and Gilmer Counties for the Next Five Years. Thesis, M.S., Agricultural Education, West Virginia University, Morgantown.

METZGER, GEORGE. Competencies Needed to Enter the Meat Processing Industry. Thesis, M.S., Agricultural Education, West Virginia University, Morgantown.

MILHOAN, DENNIS R. Slide Instruction and Film Loop Instruction Compared for Effectiveness When Used with Ornamental Horticulture Task Sheets. Thesis, M.S., Department of Agricultural Education, The Pennsylvania State University, University Park.

PAUL, PRODEEP K. Attitudes and Performance of Students with Varying Abilities in High School Agriculture Curricula in Pennsylvania. Thesis, Ph.D., Department of Agricultural Education, The Pennsylvania State University, University Park.

PERDUE, ROGER. Pre-Service Training Needs of Vocational Agriculture Teachers for Teaching Disadvantaged Students. Thesis, M.S., Agricultural Education, West Virginia University, Morgantown.

SANDHAM, THOMAS. Developing and Implementing a Marine Science Program in a Rhode Island High School. Supervised Field Practicum, M.A., Teacher Education, College of Resource Development, University of Rhode Island, Kingston.

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VOUGHT, P. TIMOTHY. An Analysis of Occupational Titles and Competences in Agricultural Machinery Sales and Service Businesses in Somerset County. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

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WITMER, BRUCE L. Cooperative Education Experience for Twelfth Grade AVTS Students in General Agricultural Production and Services. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.